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AIR COMMAND AND STAFF COLLEGE

STUDENT REPORT

POLICY AND STRATEGY IMPLICATIONS OF THE PRESIDENT'S STRATEGIC DEFENSE INITIATIVE

Major Clayton P. Bowen 85-0255

"insights into tomorrow"

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TITLE POLICY AND STRATEGY IMPLICATIONS OF THE PRESIDENT'S STRATEGIC DEFENSE INITIATIVE

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Since the introduction of nuclear weapons, military planners and theorists have rejected the idea that defense against the devastating nature of nuclear weapons was practical. With advancements in technology, however, the question of effective defense is resurfacing. This paper deals with the potential effect of a defensive system, such as President Reagan proposed in his Strategic Defense Initiative, on the United States' policy of nuclear deterrence. It will answer the question of whether deployment of an effective defensive system will alter the United States' reliance on offensive systems to support the strategy of deterrence.

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PREFACE

Since the introduction of nuclear weapons, military planners and theorists have rejected the idea of defense against the devastating nature of nuclear weapons as impractical. With advancements in technology, however, the question of effective defense is resurfacing. This paper deals with the potential effect of a defensive system, such as President Reagan proposed in his Strategic Defense Initiative, on the United States' policy of nuclear deterrence. It will answer the question whether deployment of an effective defensive system will alter the United States' reliance on offensive systems to support the strategy of deterrence.

In analyzing deterrence, the author is only touching the edges of a complex problem. This paper is by no means intended as a complete treatment of the subject. The analysis of deterrence contained in the paper is intended only to provide a starting point for the ideas that follow.

The paper is intended for someone who is knowledgeable on the subject of deterrence; however, the author has included a glossary of terms so the uninitiated reader can follow the arguments. The definitions in the glossary are the author's, and intended to aid in understanding this paper, not necessarily other writings on strategic defense or deterrence. The paper's sponsor, Lieutenant Colonel Howard DeWolf, requested an analysis of defensive systems that would destroy 75% of incoming warheads and 99.9% of those warheads respectively. The author therefore coined the term "Nominal" and "Leakproof" to describe those systems.

For his help in providing ideas and a critical eye in the development of this paper, the author wishes to thank Major Mark Warner. His criticism was insightful and prevented the author from getting too comfortable with unsupportable ideas.

ABOUT THE AUTHOR

Major Clayton P. Bowen [redacted]. He graduated from the Colorado College with a Bachelor of Arts degree in political science in June 1971 and enlisted in the Air Force two months later. His first assignment after basic training was to the Defense Language Institute where he studied the Czech language. In 1972, Major Bowen was selected for Officer Training School and received his commission as a second lieutenant in September. He then earned his wings as a navigator and completed B-52 combat crew training in early 1974 as one of the Strategic Air Command's first second lieutenant radar navigators. From 1974 to 1980, Major Bowen held a variety of positions at Fairchild Air Force Base, including squadron radar navigator, instructor, senior stan eval radar navigator, and wing Short Range Attack Missile (SRAM) Operations Officer. While assigned to Fairchild AFB, he participated in the Strategic Air Command's project "Arc Light" at U Tapao Air Base, Thailand and Andersen AFB, Guam. In 1978, Major Bowen represented the United States Air Force in the Royal Air Force's annual precision bombing competition known as "Blue Steel". In 1980, he was assigned to the United States Air Force Academy where he taught doctrine, strategy, and force employment. In 1982, Major Bowen assumed command of the Academy's Cadet Squadron 17 where he remained until his assignment to the Air Command and Staff College in 1984. Major Bowen earned the Master of Science degree in human resource management from Gonzaga University in 1977, and is currently pursuing the Master in Political Science degree through Auburn University at Montgomery.

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EXECUTIVE SUMMARY

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"insights into tomorrow"

REPORT NUMBER 85-0255

AUTHOR(S) MAJOR CLAYTON P. BOWEN, USAF

TITLE POLICY AND STRATEGY IMPLICATIONS OF THE PRESIDENT'S STRATEGIC DEFENSE INITIATIVE

I. Purpose: To determine whether deployment of an effective defensive system will alter the United States' reliance exclusively on offensive systems to support the strategy of deterrence.

II. Objectives: To investigate the theoretical basis of deterrence and United States' nuclear policy that has led to a complete reliance on offensive systems. To assume an effective defensive system exists and to analyze how that defensive system will alter our reliance on offense.

III. Analysis: Deterrence is the state of mind we create for an enemy that prevents him from striking us. The state of mind we create convinces the enemy that the costs of his actions are not worth the potential gain. Successful deterrence involves the combination of both capability and credibility. Capability is the physical ability to take an action, either offensive or defensive, while credibility is the extent to which the enemy believes we can and will act. Two methods used to deter are denial and punishment. One deters through denial by convincing the enemy his acts would fail and thus are not worth the cost. One deters through punishment by convincing the enemy that, even if he succeeds in his act, our act of retribution will hurt him so badly that the cost is not worth the gain. The United States

has traditionally ignored deterrence by denial and relied solely on deterrence through punishment. An effective defensive system can add deterrence through denial into our nuclear strategy. However, it is unlikely a defensive system could be devised that would provide complete protection to both our cities and our strategic offensive weapons. If we abandoned our offensive forces that deter through punishment and relied solely on defensive systems that deter by denial, there would be no threat to prevent the enemy from launching a strike against us. The enemy might, therefore, attempt a strike against us assuming he had little to lose against a foe who could not strike him back. If we then found our defense was not as effective as we had thought, we could be hurt terribly. If we allowed such a situation to develop, our exclusive reliance on defense would detract from rather than add to our security. On the other hand, defenses are not totally useless; a system that protects our offensive forces against an initial attack, and thus preserves a secure retaliatory force, strengthens our capability to respond to a surprise attack. To the extent the enemy perceives our ability to defend our retaliatory force, a defensive system adds to the credibility of deterrence. A combination of forces that minimizes the enemy's incentive to attack (defensive capability) while maximizing the threat of punishment for an attack (offensive capability) provides the best promise for ensuring our security.

IV. Conclusions: The United States should not de-emphasize the use of offensive forces to support deterrence even if we develop an effective defensive system. Defense will strengthen our ability to deter by preserving our ability to punish any attack against us, but is unlikely to be so effective that it can totally defend against attack.

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Chapter One

INTRODUCTION

Background

On 23 March 1983 President Reagan initiated the debate on the Strategic Defense Initiative (23:20) in what has since been referred to as his "Star Wars" speech. In that speech, the President made an impassioned plea that we free ourselves from the threat of nuclear attack that has become the terror of our generation. In his plea, he asked the scientific community to study whether a defensive system was possible. The President's Strategic Defense Initiative committee studied the problem for over a year before releasing its findings. The committee's report released in April 1984 indicated that there was sufficient evidence that a defensive system could be built to justify further study. (27:12)

Since the "Star Wars" speech, the Air Staff has indicated interest in the implications of the Strategic Defense Initiative. Specifically, the Air Staff expressed concern about how deployment of an effective defensive system would alter our reliance on offensive systems to support our deterrent. Further, would a defensive system lead us to rely on defensive systems, either exclusively or to a great degree. Finally, how will reliance on a defensive system affect the force structure we procure to support our strategy. (33:--)

The purpose of this study is to investigate the nature of our strategic deterrent to determine what potential impact an effective defensive system could have on it. To accomplish that task, several elements must be addressed in sequence. Those elements are: a description of what constitutes an "effective" defensive system; a discussion of the theoretical basis of deterrence, including the assumptions on which we base our deterrent; and an analysis of how deployment of a defensive system may alter our assumptions of deterrence.

Significance

The effect of a defensive system on our deterrent could be tremendously significant. As several analysts were quick to point out after the President's speech, the United States has never had a defense against nuclear missiles. (21:20) In fact, the assertion is that the lack of a defense was an essential part of the stability of our deterrent.

The Strategic Defense Initiative also represents a decision point in the United States' deterrent strategy: will we continue to rely on only offensive weapons, and the threat of punishment to deter any aggressor? Will we abandon our reliance on offensive weapons and adopt a purely defensive strategy? Or will we adopt a strategy that relies on both offensive and defensive weapons to achieve our objectives? The path this venture takes will provide the answer to these questions, as well as determine how we will spend billions or trillions of our defense dollars.

One of the most important questions in this venture may be how the system affects the stability of our deterrent. Will a defensive system alter that stability by providing an opening for an opponent to strike first? Will a defensive system create the fear that we are preparing to strike first, thus inducing a pre-emptive strike against us? Will a defensive system give us an incentive to strike first ourselves without fear of retaliation? Such questions have great importance and will be a central part of this study.

Assumptions and Limitations

Assumptions:

A defensive system can be made and deployed and we have the political will to do so. The purpose of this study is to assess the effects of a defensive system on our deterrent, not on the political problems associated with getting the system approved. Therefore, those political considerations will not be a part of this study.

The system will be constructed under public scrutiny, i.e. there will be no sudden surprise unveiling. While stability is an important consideration for this study, that discussion will be limited to how a defensive system affects stability once the system is in place, not how covert construction and implementation affects it.

All communications work appropriately. While command and control of the system is certainly an important concern, it falls into the area of operational considerations. Again, since

Chapter Three

EFFECTS OF A DEFENSIVE SYSTEM ON OUR DETERRENT

Defense

The last chapter examined the the theoretical foundation of our deterrent. In this chapter, we will look at the nature of the proposed defensive system and compare its assumed characteristics with some of the ideas in chapter two. This comparison should permit us to see how a defensive system will alter our thinking on deterrence. Since all our calculations about how well deterrence will work depend on our estimates of our ability to defend, (1:173) we will begin the chapter with a look at the nature of defense and the proposed defensive system. The remainder of the chapter will examine the effects of an effective defense on the ideas discussed in chapter three.

Defense can be of two types: active or passive. (1:180) An active defense is one that destroys weapons or forces before they reach their targets. A passive defense, by contrast, is one that tries to protect targets indirectly. Examples of indirect protection include hardening to minimize the damage of any weapon hitting the target, dispersal to reduce the number of targets the enemy can destroy with a single weapon, or conceivably even camouflage to make the target harder to find. So far, the United States' actions to defend strategic targets have been passive.

A defensive system of the type President Reagan proposed would be an active system. It introduces the hope of rendering nuclear missiles impotent (30:7) and providing real protection to our people and forces. (25:30) While this system would defend against only ballistic missiles (26:1) and not against cruise missiles and manned bombers, it represents a start in our efforts for active defense.

Based on the criteria for an effective system in chapter one, there are four possible combinations of effectiveness: a nominal point defense; a nominal area defense; a leakproof point defense; and a leakproof area defense. Based on the project sponsor's request, (33:--) we will use the criteria of a nominal

Conclusion

The above arguments have given a view of what we need to provide an adequate deterrent. One of the first requirements, as we have seen above, is a stable system that will not blow up in our faces in a crisis.

In turn, a requirement for a stable system is a secure retaliatory force. Securing the retaliatory force may even allow us more time under crisis to decide on action; if the enemy's blow will not destroy our force, there is less urgency to respond immediately. (8:228) However, as Colin Gray has pointed out, our failure to continue to compete with the Soviets in the strategic arms race has led to Soviet superiority in strategic arms. (17:181) If Soviet superiority becomes larger, the security of our second-strike force could be placed in jeopardy.

In addition to the secure retaliatory force, we must communicate clearly to the Soviets that they cannot strike us first and hope to escape a punishing counterstrike.

Finally, if deterrence fails, we must have the capability to fight the war. This is not to say that we welcome a nuclear war; however it is a recognition that deterrence could fail, and a deterrence posture that does not provide for the use of force should deterrence fail is not credible. As a final note on this discussion of deterrence, note the following observation by Bernard Brodie:

> All this is not to suggest that we have no interest in "win the war" capabilities and strategies. So long as there is a finite chance of war, we have to be interested in outcomes; and although all outcomes would be bad, some would be very much worse than others. (1:278)

against striking. As with other deterrence concepts, though, it is much easier to describe the ideal situation than to provide for it in one's policy. An argument about our second strike capability has to do with incentives to strike. (9:27) If we get to a point where the enemy perceives that he can destroy our nuclear force completely without suffering the consequences of a retaliatory strike, he may be tempted to an attack that he would not have otherwise considered. (1:185) This argument has even extended to the targeting debate of counterforce versus countervalue:

> Some people opposed counterforce on grounds that it increased the risk of wartime escalation. First-strike capabilities on both sides would create a hair-trigger dilemma: whichever side fired first would win, so both sides would be quick to shoot in a crisis. (22:25)

The major disincentives to striking are provided by the punishing nature of nuclear weapons. However, these disincentives can only continue to be effective as long as we retain the ability to strike second and still punish the enemy.

It is not enough to deter war on a normal daily basis; we must also deter war in times of crisis. As we have already seen, the problems of misperceptions and misinterpretation, of haste and miscalculation can cause problems for maintaining deterrence. These problems could only be heightened in a crisis. However, in a crisis, it is important to continue to accurately communicate to one's adversary what one's intentions and objectives are to preclude such a perception problem. In addition, it is important to provide choices to the enemy he can accept, rather than lessen the disincentives against striking:

> It might be possible to leave a party with two choices which are both equally undesirable. Left with the choice, he might conceivably choose that path which also results in undesirable consequences for his adversary. Thus, an opponent left with the choice of surrender or fight, might very well choose to fight and inflict as much damage on the enemy as possible. . . . To be effective, therefore, deterrence must be designed to give a potential adversary more desirable alternatives than the act which is to be deterred. (31:29-30)

Other acts that may take place in a crisis can be destabilizing. One aspect of damage limiting already discussed is the incentive it provides in a crisis to strike first. (10:188) Because the only way we have now to limit damage is to destroy on the ground weapons that might strike us, a view toward damage limitation in time of crisis is destabilizing.

adversary's intentions, or a drastic mistake under pressure to make a decision quickly. Consider the following description of the consequences of inaccurate perceptions:

> Some kind of error or inadvertence, . . . some random event or false alarm, or some decisive action to hedge against the unforeseeable would have to be involved in the process on one side or the other. . . . It is chastening to consider that the "shot heard round the world" may have been fired in the mistaken belief that a column of smoke meant Concord was on fire. (8:95)

Perception of an enemy's intentions is at least as important as perception of a situation. Unfortunately, it is not always possible to accurately interpret an enemy's intentions based on his actions.

> One state's arms can make for a feeling of being threatened among other states, even if no threat is intended. This effect is magnified because civilians may pay for arms with the hopes of avoiding war, but the services, naturally enough, have to think in terms of fighting one. As a result they order the weapons, talk, and train in a manner that can readily arouse foreign apprehension. (7:30)

Further, as each side successively perceives (or misperceives) the other side's actions and calculates intentions, those successive misperceptions can add to the feeling of insecurity. As one side reacts to the other's actions, perhaps by buying more weapons, the other sees the weapons buy as an indication of hostile intention. Even if one is not sure the other side's action indicates hostile intent, he may treat the act as hostile simply because the potential cost of miscalculation could be so great. (14:203)

Another perception problem affecting stability is caused by haste. Because of the expected character of global nuclear war, there is likely to be little time to slowly calculate all one's options in time of crisis. For instance, if the first nuclear detonations have just ravaged American soil, there will be little time for a decision-maker to weigh the alternatives; either we respond or successive enemy weapons will leave us nothing to respond with. The problem of containing a conflict before it erupts into a strategic nuclear war is a definite threat to stability. (8:227)

At the heart of preserving a stable system is the idea of incentives to strike. The other side of the coin is disincentives. Deterrence is obviously strongest when there are no incentives to strike and when there are strong disincentives

A dangerous side to the nuclear balance is contained in the potential for nuclear blackmail if one side becomes markedly weaker than the other. A possible scenario would be a counterforce first strike by the Soviet Union against our nuclear forces. This first strike would be accompanied by a message from the Soviets to our President that they had spared American cities, and will not strike them provided we do not retaliate. (3:157) In exchange for sparing our cities, they make certain demands. Nuclear blackmail could also occur if our relative nuclear strength became so low that they could make such a threat without even launching a first strike:

> Why bother, then, about the strategic balance? Because in circumstances of confrontation and crisis, or if conventional warfare between the superpowers has already broken out, decisions might be made that would seem quite irrational under more normal circumstances. If over the years the certainty of U.S. retaliatory strength had been eroded by a reduction in the ability on U.S. strategic forces to survive an attack or in their ability to penetrate Soviet defenses, or if the U.S. command and control structure is not seen as certain to execute such retaliation should a strategic war begin, these conditions would have two effects during a crisis.
>
> First, the Soviets might actually decide to make a preemptive strike. . . . But a second, more likely occurrence would be an erosion of the determination of U.S. decision makers, helped along by an avalanche of pressure within the United States and from allies. (2:60)

Stability

Stability is one of the most important goals of United States nuclear policy. As the Scowcroft Commission wrote, "But whether the Soviets prove willing or not, stability should be the primary objective both of the modernization of our strategic forces and of our arms control proposals." (29:3) How to achieve that desired stability is a much tougher nut to crack. It involves maintaining the credibility discussed in the last section, controlling perceptions, minimizing incentives for aggression, and handling crisis.

Perceptions play an important part in many aspects of deterrence, and stability is another one of those aspects. Failure to accurately perceive a situation may lead to a miscalculation of a given situation, misreading of an

We say that we will not strike first in a nuclear war, and must therefore make the enemy confident we will retaliate if he strikes us first. We have already addressed the problem of a second strike capability, and that problem is related to this issue. As former Secretary of Defense Harold Brown wrote:

> Deterrence of a nuclear attack depends critically on the certainty that much of the retaliatory force will survive an attack on it, that it will be effectively dispatched to retaliate, that it will penetrate such defenses as may be established to intercept it, and that it will find its targets and destroy them. (2:61)

Again, such certainty depends on a secure second strike capability.

A factor in the strength of a deterrent is the confidence one can have of achieving one's objectives by striking, and of weighing those potential gains against the costs of the strike. The greater the uncertainty of the positive outcome of a first strike, the stronger the deterrent. (19:61) Thus, the more doubt we create for an enemy that he can strike us first and achieve his objectives, the better we deter him.

A final aspect of confidence is worth noting for future reference. The confidence we have in our defenses will also guide our actions, as will the enemy's confidence in our defense guide his actions. Up to this point, we have chosen not to defend ourselves; however, we will look at the affect of confidence in a defensive system in the next chapter.

Credibility

Credibility is a recurring theme in discussions on deterrence. As stated earlier, deterrence rests on creating a state of mind for the enemy that we have both the capability and the will to use our nuclear weapons in a given situation. Two aspects of credibility are of interest here: the "usability paradox", and the potential of nuclear blackmail following an initial attack.

The "usability paradox" is an expression to describe the problem associated with making the threat to use nuclear weapons credible. If we are sane, we do not want to launch nuclear weapons (and invite a nuclear response) at the drop of a hat; therefore, we design certain safeguards into our nuclear weapons. (3:62) On the other hand, we do not want to make our weapons so unusable that the threat to use them is unbelievable. Thus the usability paradox describes the fine line we must tread between making our weapons usable, but not too usable.

The bottom line to our assumptions on deterrence is that if we are able to threaten the Soviet Union with retaliatory punishment, the Soviets will behave. Declining to develop a defense, we thus entrusted our fate to the self-restraint of our adversary in the Soviet Union. (19:58)

Theories

There are numerous aspects of deterrence that affect our thinking on the subject, and thus affect how we approach deterrence. Although not all-inclusive, we will look at the areas of employment plans, confidence, and credibility.

One of the first distinctions in the area of employment plans is in targeting plans, whether counterforce or counter-value. A counterforce strike is one that goes after an enemy's military capability, especially his ability to use nuclear weapons after a counterforce strike. (1:155) A countervalue strike, on the other hand, is a strike at the assets in the enemy's society that he values the most, particularly cities and industry. Thomas Schelling described the difference between these two strategies in a chilling way: "The reason for going after the enemy's military forces is to destroy them before they can destroy one's own cities (or our own military forces). The reason for not destroying the cities is to keep them at our mercy." (8:193)

Two closely related employment theories are those of preemptive strike and damage limitation. A preemptive strike is an initial nuclear strike, the objective of which is to disarm the enemy and make him incapable of responding. (1:176) Using a damage limiting strategy one targets an enemy's military capability to minimize damage in any follow-on strike. A damage limiting strategy may take place as the initial strike in a war or any time after that strike. Unfortunately, the best way to limit damage is to fire before any weapons are launched, and that requires firing first. (10:188) The obvious problem with both these strategies is that each assumes starting a war is advantageous. Since our objective in nuclear policy is to prevent that war, each of these ideas runs counter to that goal.

The idea of confidence includes the confidence we create for our enemy that his aggression will result in our retaliation. It also includes our confidence, or lack of it, that we could achieve our objectives through striking first, and our confidence in our ability to adequately deter or defend against any aggression.

its roots in the writings of Giulio Douhet and has remained intact until now. Bernard Brodie recognizes the enduring nature of this argument by writing:

> The proper function of fighter planes, insofar as they are used at all, is not to defend one's territory against enemy bombers but to support one's own bombers in the attack on enemy targets. "Viewed in this light, aerial warfare admits of no defense, only offense. We must therefore resign ourselves to the offensives the enemy inflicts upon us, while striving to put all our resources to work to inflict even heavier ones upon him. This is the basic principle which must govern the development of aerial warfare. (1:87)

Additionally, the conviction that there was no defense led some to the idea that the inability to defend was beneficial to the endurance of deterrence. If both the United States and the Soviet Union are vulnerable to attack, the idea went, deterrence was best maintained. (26:1)

The idea that there was no defense against nuclear weapons reinforced the punishment aspect of deterrence. If the enemy defined his objectives as the destruction of our cities, we would be unable to deny him those objectives. Therefore, the only remaining deterrent alternative was punishment.

An often overlooked aspect of deterrence is the fact that we are not trying to deter ourselves, but an adversary who may be different from us. As John Dziak, an analyst in the Soviet and Warsaw Pact Division of the Defense Intelligence Agency pointed out:

> . . . A close examination of Soviet literature on the issues of "preventing," "disrupting," and "frustrating" an enemy nuclear attack reveals that these terms really refer to Soviet preemptive counterforce strikes coupled with strategic defense, both passive and active (including civil defense). Such notions run counter to the Western concept of "mutual assured destruction," which assumes a mutual defenselessness, mutually agreed upon. Strategic defense, according to this Western view, is destabilizing; in the Soviet Union, however, mutual defenselessness makes no military sense and is therefore irresponsible. (4:25)

But merely reading Soviet literature on nuclear operations is not enough to ensure our deterrent is adequate. To be sure we are adequately deterring, we must put ourselves in the mind of a Soviet decision-maker in time of crisis. (20:72-73) That task is not likely to get any easier in the near future.

> at whatever level and intensity, in a proportionate and appropriate manner that would make the costs higher than any possible gain. (11:28)

With few modifications, countervailing strategy is the doctrine the United States embraces today.

One further concept is important in the development of U.S. nuclear policy, that of "extended deterrence". This is a policy that has changed much less than the above doctrines,and has remained at the heart of our nuclear policy since its inception. Tied to previous U.S. nuclear policy, particularly massive retaliation, the notion of extended deterrence is our attempt to relate the security of Western Europe and our NATO allies to our threat to use our nuclear force to punish any Soviet aggression in the area. Although extended deterrence has continued as a fundamental part of our nuclear policy, it is a doctrine whose credibility has been placed in doubt, (7:32-33) as we will see later in this paper. It is a doctrine to which our European allies still cling, although with increasing wariness.

Assumptions on Deterrence

There are a number of assumptions we have made about the way deterrence works. These assumptions are central to how we have structured our deterrent and how it has evolved. One of the first assumptions we make is that we will not be first to strike in a strategic nuclear war. (1:176) Our doctrine currently allows for our using nuclear weapons in a European scenario in which our conventional forces were being overrun by Soviet and Warsaw Pact forces. However, we firmly reject the notion of a first intercontinental strike.

Implicit in the rejection of a first strike doctrine is the need for a secure second strike capability. JCS Publication 1 defines a second strike capability as, "The ability to survive a first strike with sufficient resources to deliver an efficient counterblow. (Generally associated with nuclear weapons)" (28:326) Obviously if we will not use nuclear weapons first, if a nuclear war occurs, it will be the enemy who first fires at us. If we are to be able to punish in return, we must have a secure second strike capability. (10:170) Without the ability to punish in return, we have no means of deterring a first strike to begin with.

Another assumption about nuclear weapons, and one that is at the heart of a ballistic missile defense debate, is the idea that there is no defense against nuclear weapons and modern delivery systems, particularly missiles. (12:28) This notion has

These goals guide the United States' actions in many areas, including force structure, employment doctrine, and deployment of forces.

Evolution

United States nuclear policy has evolved over the years since the development of atomic weapons to the deterrence posture we have now. While this is not intended as a complete history of the United States' nuclear policy, a brief outline of that development will help put our present policy in perspective.

The first visible policy the United States espoused was that of "Massive retaliation." Under this doctrine, the U.S. threatened to respond with nuclear retaliation to aggression at any level. (8:15) It was a crude policy, and eventually fell into disuse because it was not credible. For a time, the United States was the only nuclear power, but it became increasingly unbelievable that we would unleash our nuclear might for any small infraction. This realization led us toward a new nuclear doctrine.

The new doctrine became known as "assured destruction", and eventually became "mutual assured destruction" or simply "MAD". Assured destruction was the recognition that we had the capability to completely destroy the Soviet Union in any nuclear exchange. This doctrine became MAD with the realization that the situation was mutual. Again as time passed, valid criticisms of MAD surfaced:

> Criticism of assured destruction tends to take three forms: the conceptual incongruity between assured destruction as a deterrent threat and as a warfighting plan, asymmetries between American and Soviet strategic conceptions of deterrence and nuclear warfighting, and the inflexibility of MAD in dealing with different kinds of situations. (10:185)

These problems noted with assured destruction and with MAD led us over time to develop what is now known as the "countervailing strategy", a doctrine to replace MAD. Countervailing strategy attempts to overcome the previous inadequacies of MAD by being able to meet any threat across a spectrum of potential conflicts:

> The heart and purpose of the countervailing strategy is to maintain deterrence through the credible threat to respond to any contemplated Soviet nuclear aggression,

weapons. It is not so easy to convince one's adversary the threat will be carried out, particularly if retaliating invites one's own death. On the other hand, since the consequences of mistaking an adversary's will are so great, there is probably less likelihood of having a threat challenged. Further, deterrence operates such that it is successful when one's adversary does nothing. It is therefore impossible to say for sure whether the enemy did nothing due to the threat or for some other reason having nothing to do with deterrence. (6:20) Under such conditions, it is very difficult to assess a potential adversary's will.

Deterrence can prevent an adversary's action through two mechanisms: denial and punishment. (7:30-31) Denial is similar to defense; its purpose is to show an adversary he cannot achieve his objectives through aggression, so any attempt at aggression would only waste his resources. Punishment follows a different philosophy. The idea behind punishment is that if the enemy strikes, one's surviving forces will strike him back in a punishing counterstrike. (10:170) The philosophy here is to make the cost of aggression so high, regardless of whether the adversary can achieve his objective, that aggression is not worth the cost.

The fundamental goal of current United States' nuclear strategy is to prevent nuclear war, and we assume the same for the Soviet Union. The devastating nature of nuclear weapons has caused us to shift our thinking from how best to win the next war to how best to prevent it. (13:16) In fact, both the Soviet Union and the United States have adopted a single objective as supremely important--preventing a nuclear strike from the other. (5:50) While this goal may be self-evident, there are other goals of the United States' nuclear policy. Included in these goals are:

> Deter nuclear attack by the Soviet Union on the United States ("basic deterrence")
> Help deter a nuclear or conventional attack on U.S. allies ("extended deterrence")
> Minimize the incentives for either side to strike first in an international crisis ("crisis stability")
> If deterrence fails, help defeat nuclear or conventional attacks on the United States or its allies and minimize damage to them ("war fighting", "damage limitation", "escalation control")
> If deterrence fails, help terminate conventional or nuclear war in the manner least damaging to American and allied security ("war termination")
> Support U.S. foreign policy in peacetime and prevent nuclear coercion of the United States and its allies ("diplomatic support" or "counter-deterrence") (3:135)

Chapter Two

THE THEORETICAL BASIS OF DETERRENCE

Purpose

The purpose of this chapter is to provide the reader with a basic foundation in the subject of deterrence. The author will discuss the evolution of U.S. nuclear policy, our assumptions about how deterrence works, and stability in deterrence. This chapter is by no means intended as an all-inclusive discussion on deterrence theory. Rather, it is intended as a framework for analyzing the effect of a defensive system on our deterrent. Further, this chapter forms the basis for predicting what we require from our systems, both offensive and defensive, to support deterrence.

Definition

Deterrence has had many definitions since people first started seriously thinking about the subject, but most center around creating fear in any potential adversary. JCS Publication 1 defines deterrence as, "The prevention from action by fear of the consequences. Deterrence is a state of mind brought about by the existence of a credible threat of unacceptable counter-action." (28:114) The state of mind known as deterrence is the product of two interrelated factors: capability and will.

Capability, simply stated, is what one can do with one's military might. It includes both the ability to defend and the ability to attack. It is the easier of the two factors to understand, since it takes no special psychological talent to assess; simply viewing the enemy's military might gives one the first factor in the deterrence equation. (6:23) One further aspect about capability is worth noting: with the advent of nuclear weapons, capability now includes the ability to inflict a great deal of pain on the enemy, irrespective of whether that same capability brings one close to a military victory. (8:2)

Will, and how the enemy perceives that will, is a much more difficult factor to assess. It is easy to tell an adversary that certain of his actions will result in our launching nuclear

effective standard. A leakproof system is one capable of intercepting and destroying 99.9 percent of all incoming missile-borne warheads. This study will deal only with intercepting warheads from intercontinental ballistic missiles and not the threat from cruise missiles or manned aircraft.

The second criterion for an effective system deals with the system's coverage, i.e. what areas it defends. Under this criterion, there are also two categories of effectiveness. The first category of coverage is an "Area" defense. An area defense is one that covers the entire United States continental land mass, including cities, industrialized areas, and rural farmland, to name a few examples. A "Point" defense is one of much more limited coverage. To be effective, a point defense need only defend the area around potential strategic targets, such as ICBM fields, B-52 and FB-111 bases, NORAD, and other strategic targets.

the purpose of this study is to assess the effect of an effective defensive system on our deterrent, discussion of any communication problem assumes an ineffective system.

Any move on our part in the area of strategic weapons, either offensive or defensive, will generate a Soviet countermove. This assumption may be one of the crucial ones of this study, since it provides the vehicle to project the long-term effect of a new system on the balance of weapons between the superpowers.

The defensive system will not affect the president's reaction time under crisis. Since it is difficult to predict whether an effective defense will simplify or complicate the President's ability to control the strategic offensive forces, this study will treat that area as if it were unaffected by the system.

Limitations -- This study will not address:

Cost of constructing the system. Again, since the purpose of this study is to assess the system's effect on our deterrent and not the difficulty of procuring it, any treatment of cost is unnecessary.

Arms control agreements as a result of a defensive system. Certainly arms control is one of the more important aspects of our overall strategy; however, such a discussion is beyond the scope of this study.

Any economic hardship the Soviets may impose upon themselves to build rival or competing systems. While one of the assumptions of this study is that any move on our part will generate a Soviet response, it is not the author's purpose to analyze the costs of such a countermove.

Criteria For an Effective System

No discussion of an effective system could begin without first describing what that system must do to be "effective". The criteria for effectiveness in this study will be in terms of percentage of weapons the system destroys and the coverage of the system provides.

Using the first criterion, percentage of weapons the system destroys, there will be two standards to describe an effective system. The first standard is that of the "Nominal" system, and is based on the project sponsor's description of an effective system. A nominal system is one capable of intercepting and destroying 75% of all incoming missile-borne warheads. The next standard describes the "Leakproof" system, and is used here to compare the nominal system with a more

area defense for the majority of the analysis here. After an analysis of a nominal area defense, we can contrast its characteristics with the other three possibilities. Although guided heavily from the references cited, the conclusions drawn here result from the author's own analysis.

Key Terms

In the last chapter, we looked at the concepts of deterrence by denial and deterrence by punishment. In this chapter we will examine these and other concepts in light of a nominal area defense, or a defense that protects the United States' continental land mass against 75% of all missile-borne warheads. While it is obvious that if "only" 25% of the enemy's warheads get through, we will not have averted disaster, there can still be some usefulness in a nominal system. (1:185) A system that destroys 75% of incoming warheads may not make us feel safe and comfortable; however, such a success rate may be enough to worry the attacker. For the first time since nuclear weapons shaped the relationship between the superpowers, we may be able to reintroduce the idea of denial into the strategic balance. If a 75% success rate introduces enough possibility of failure into the enemy's mind, he will be deterred by denial in addition to being deterred by fear of punishment. As long as we do nothing to rid ourselves of our offensive weapons, the deterrent by punishment would remain in effect alongside the denial deterrent.

While the United States now professes a countervailing strategy, rather than one of assured destruction or MAD, the notion of assured destruction is always present in the back of our minds. A nominal area defense does not remove the prospect of assured destruction; if 25% of the Soviets' warheads reach our cities, a large-scale attack will destroy our society as surely as if all their warheads had struck us. What, then, is the value of such a defense? It is in the price in extra warheads the Soviets must launch to achieve their objectives. (19:61)

A defensive system is unlikely to have a great impact on our countervailing strategy. The philosophy behind the countervailing strategy, as we have already seen, is to maintain the ability to respond to a variety of circumstances across the spectrum of potential threats. Introducing a defensive system takes away no options and is more likely to allow us greater flexibility in our range of options. For example, if we are not compelled to use only offensive force to counter a given level of threat, our options are multiplied.

The prospect for extended deterrence has received much attention since the President's proposal. Much of the criticism of the Strategic Defense Initiative has been that it will weaken our ability to extend deterrence to our NATO allies:

> U.S. allies would strongly oppose such an initiative, given both its effect on detente and its implications of a "fortress America"; the damages done to the alliance may be deep and permanent. The viability of the British and French deterrents may be perceived to have been reduced, prompting major new strategic programs on their part at the expense of much needed contributions to conventional defense efforts. (24:357)

On the other hand, Colin Gray offers a strong argument that a defensive system, far from removing United States interests from Western Europe, actually strengthens the commitment that already exists:

> [An advantage of a defensive system is] reduced self-deterrence for the strengthening of deterrence. Logically at least a United States equipped with damage-limiting "layers" of active and passive defenses (backstopping counterforce prowess of all kinds) should be more willing to take the controlled and limited strategic nuclear initiative on behalf of beleaguered overseas allies. In practice, one may be certain that serious residual doubts over the operational effectiveness of strategic defenses would serve to discourage a president from any activity that approached nuclear adventurism. Nonetheless, the deployment of strategic defenses for North America should help to resolve in the Soviet perception the security of NATO-Europe with prospective employment of U.S. "central systems," and therefore should enhance the stability of deterrence. (16:405)

On balance, the above argument seems to have more merit than the previous one. One of the criticisms of the U.S. extended deterrent up to this point has been that it was not credible. Since to tie European security so closely with ours invited our own destruction, many believed we could not convince the Soviets we were serious about risking ourselves in Europe's interest. With a defensive system, we can make the assertion more credible; if we are able to defend ourselves to some degree, we will be more free to take risks in our allies' interest. As Colin Gray has pointed out above, the value of this ability is not that it allows us to be reckless, but that it communicates to the Soviets our seriousness. (16:405)

the assumption of its impossibility are mutually exclusive, we must throw one of them out; for the purpose of this paper, we have already assumed that a nominal area defense is possible. Let us turn now, however, to some of the other assumptions of deterrence that require a little more analysis.

The key requirement presented in Chapter Two was for a secure second strike capability. A defensive system can only enhance this capability, even if it only provides 75% effectiveness. By destroying a percentage of incoming warheads, we are able to make the enemy unsure of his probability of success. While a 75% effective system certainly would not protect all of our second strike capability, we would surely protect a percentage of our retaliatory force, at least in the first strike. The prospect of some of our weapons remaining after a first strike is likely to deter the Soviets because we will have denied them their objective, while retaining the ability to punish in return. The purpose, then, is not to protect 100% percent of one's retaliatory force, but to be sure there is enough left to convince the enemy one can retaliate. (11:83) The enemy thus has no incentive to strike first (denial) and has strong disincentives against striking (punishment).

The idea that we must structure a deterrent that will affect the Soviets, not one that would deter us is still an important concept. As we have already seen, Soviet writing talks of warfighting, not just preventing nuclear war. Some Soviet officials, notably Yuri Andropov, have characterized the Strategic Defense Initiative as destabilizing (15:324) and representative of an American attempt to build a first strike capability. Nevertheless, the defensive system can have a positive effect on deterrence, if only by adding another capability to the equation. As Mr. Andropov's concern over the system indicates, it is already worrisome to the Soviets.

As we saw earlier, when there is no defense, the purest form of damage limitation is to strike first and destroy the enemy's weapons before he shoots them. With an effective defense in place, this notion is completely changed. Since to shoot first invites a counterstrike, which by any calculation means terrible damage to oneself, even attempting to limit damage makes damage a certainty. In fact, the best way to limit damage is to actively defend against it if one has the ability. Destroying missiles in flight assumes a war has already started; destroying them on the ground in a first strike starts a war that might have been averted.

The distinction between counterforce and countervalue targeting becomes less meaningful with a defensive system in place. The purpose of counterforce targeting, as we have already seen is to destroy, or threaten to destroy, the enemy's

The distinction between counterforce and countervalue targeting becomes less meaningful with a defensive system in place. The purpose of counterforce targeting, as we have already seen is to destroy, or threaten to destroy, the enemy's weapons. When there is no defense, counterforce targeting, like damage limitation, is the only way to accomplish that objective. If one has an effective defense, the objectives of counterforce can be accomplished by destroying targets in the air, not on the ground. One's defense can accomplish the counterforce, or denial aspect of deterrence, and let the offense accomplish the countervalue, or punishment aspect.

The possibility of nuclear blackmail keeps us constantly aware of our force balance. As we have already seen, the potential for an enemy to dominate our decision-making process through superior strength could become a reality if we allow our forces to become markedly inferior. Defense can be a force in the strategic balance that maintains our deterrent intact:

> Defense strengthens deterrence. It is necessary not only to deter war but, most important, to deter Soviet domination. Defense offers an alternative to capitulation and strengthens our position in the face of crisis. It also can decrease the likelihood of nuclear holocaust by providing time for deliberate decision rather than instantaneous resort to massive retaliation lest our valuable offensive weapons be destroyed. (18:100)

Stability

A nominal area defense appears to be one that could add to rather than detract from the stability of deterrence. While a system that promised to provide leakproof protection could be seen as an attempt to develop a first strike capability, a nominal system provides no such promise. But, it is also important to attend not only to the capability of the system, but to the enemy's perceptions of one's intentions based on that capability. A nominal system, while making an enemy jealous of its ability, does not threaten a first strike since the defense could intercept only 75% of the retaliatory strike; we would thus be inviting disaster upon ourselves by striking first, and have a strong disincentive not to strike. If we can communicate this calculation to our enemy along with the capability of the system, he need not fear that we have created for ourselves an incentive to strike. Thus, we have not provided ourselves an incentive to strike while maintaining a disincentive against striking.

A defensive system could work to our advantage to preserve stability in a crisis or when haste would otherwise be necessary:

> If a country's retaliatory weapons are reasonably secure against surprise attack, preemptive or premeditated, the country need not respond so quickly to alarms and excursions. Not only can one wait and see but one can assume that the enemy himself, knowing that one can wait and see, is less afraid of a precipitate decision, less tempted toward a precipitate decision himself. (8:228)

In time of crisis, then, a defensive system adds to the stability of deterrence.

A crisis may lead to the actual outbreak of war on a limited scale, and part of United States nuclear policy is to control the escalation of that war. A nominal area defense would add to our ability to defend as soon as the first missile was fired. Therefore, at lower levels of conflict, existing means of escalation control would be in effect; however, an enemy contemplating escalation to the strategic nuclear level using missile delivery would have to consider how his escalation might be foiled by the defensive system. Such a defense, then, should add to our ability to control escalation.

Other Criteria

Having looked at what effect a nominal area defensive system would have on our deterrent, let us now contrast these conclusions with what we might see using the other criteria. The analysis here, as with the previous section, is the author's. Again, the other possible systems are the nominal point, leakproof area, and leakproof point.

There would be very little difference in the effect of changing a nominal area system to a nominal point system. The value of a nominal system is that it protects some of one's forces and helps ensure a second strike capability. If the enemy's objective is to destroy our strategic assets, a point system will defend them as well as an area defense, and probably with greater efficiency. If, on the other hand, the enemy's objective is to destroy our cities, a nominal system will allow only 25% of the enemy's warheads to reach their targets. But if the enemy plans to assign more than a single warhead to each of our cities, 25% of his warheads are likely to destroy our cities and punish us as if we had no defense at all. Further, regardless how the enemy conducts a countervalue strike, 25% of his warheads is a terrible price to pay. Thus, the value of a nominal system is not in the protection it provides to our

cities, but the protection it provides our strategic forces. Therefore, the benefit we derive from a nominal defense, whether area or point, is the second strike capability it provides us.

A leakproof area defense, especially if both sides had it, would be an ideal situation. It would remove the threat of nuclear war, at least between the superpowers. But, such a system is not likely; the possibility of the offense finding new ways to get around the defense is always a strong one, and such a breakthrough would make the system no longer leakproof. Technology, such as that embodied in the maneuvering re-entry vehicle concept or some form of advanced penetration aid, promises to stay a step ahead of the defense. (32:--) In addition, since we would be unable to test our theoretically leakproof system against the volume of warheads it would have to face in an actual attack, we are unlikely to place complete confidence in any system. Such a system could probably deter the enemy by threatening to punish him with our surviving warheads as well as a nominal system. However, our lack of confidence in its ability to truly defend would lead us to continue our reliance on offensive systems; if we abandoned our offensive forces and our defense was not as good as we thought, we could be totally destroyed. In addition, if we abandoned our offensive forces, there would be no disincentive to prevent our enemy from striking us just to see what would happen; if we cannot strike him back, he might think it was worth a try. Such a condition would be far from comforting and would appear to decrease our security rather than increase it. Even if a breakthrough by the offense were only partial, the devastating nature of nuclear weapons would mean the offense had regained the power to punish. Whatever the merits of a leakproof area defense, it is not a situation that is likely to endure for very long, nor are we likely to place complete faith in it.

The final criterion is that of a leakproof point defense. The difference between this type of defense and the nominal point defense is one of degree. Such a defense would guarantee a second strike capability (rather than just increase the likelihood of a second strike capability) but would leave cities still at the mercy of offensive strikes. Thus, to a greater degree than a nominal point defense (or a nominal area defense as we have seen) a leakproof point defense ensures our ability to punish the enemy, but does not deny the enemy the ability to hurt us. Like the nominal defense, it limits the incentive to strike (he cannot destroy our weapons) while increasing the disincentive against striking (more surviving weapons mean greater power in a retaliatory strike.) However, as we have just seen, technology will continue to provide ways to beat the best defense, thus making our system less than leakproof.

Chapter Four

CONCLUSIONS

The overriding question of this study has always been how a defensive system will alter our deterrent, particularly whether we will change our reliance on offensive weapons. As we have already seen, the United States now relies exclusively on offensive weapons to sustain deterrence through the threat of punishment. We currently choose not to defend ourselves and sustain deterrence through denying the enemy his objectives. With the possibility of an effective defensive system on the horizon, the United States will be able to add a degree of denial into the deterrence equation. It is unlikely, however, that we will abandon at least partial reliance on offensive weapons to support our deterrent strategy. Of the four possible combinations of defensive systems, only the leakproof area defense would allow us to abandon our reliance on offensive weapons to protect ourselves. As we have already seen, it is unlikely we will ever be able to develop such a system, or to keep it leakproof for very long if we do develop it. Our inability to defend ourselves completely against an ICBM attack will therefore continue, and we will therefore have to rely on deterrence, not defense, to prevent such an attack.

If we add a defensive system, what will it do for us then? As we have already seen, it will not provide a guaranteed protection for our cities; if technology can devise a defense against ballistic missiles, that same technology can surely devise an offensive system that will partially survive the defense. A defensive system will, however, provide some degree of protection to our strategic offensive systems to help ensure a retaliatory capability and thus strengthen both the capability and the credibility of our deterrent. We will retain the ability to deter the enemy by punishment (the defense helps protect the forces we need to punish) and will add the ability (however partial) to deny the enemy his objectives through defense. The strengthening of our deterrent, not the ability to defend ourselves completely against attack, is thus the greatest benefit we gain from a defensive system.

We will, therefore, maximize deterrence through deployment and maintenance of both defensive and offensive systems. Defensive systems will limit the incentives for the enemy to

strike since defense makes his success less likely. Offensive systems will maximize the disincentives against striking since our surviving offense can punish the enemy in return.

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GLOSSARY

Active - refers to a method of defense. An active defense takes action to prevent weapons from striking their targets, such as shooting down attacking weapons. See "Passive."

Area - refers to the coverage provided by a defensive system. An area defense, for the purpose of this paper, defends the entire United States continental land mass. See "Point," "Leakproof," "Nominal."

Counterforce - a targeting strategy that intends to destroy the enemy's military forces, particularly nuclear systems, so the enemy cannot strike back with nuclear weapons. See "Countervalue," "Preemptive."

Countervalue - a targeting strategy that intends to destroy the enemy's cities and economic capability, thus punishing the enemy for an action he may have already taken. See "Counterforce," "Punishment."

Damage Limitation - a strategy that attempts to limit the damage one receives from a nuclear strike. One may limit the damage by striking the enemy's offensive weapons before they are launched, or by preventing those weapons from impacting after they are launched. See "Preemptive," "Counterforce," "Active."

Denial - a method to deter a potential aggressor. By structuring one's forces so that, even if the enemy attacks he will be denied his objectives, one removes the incentive to attack and thus deters the enemy. See "Deterrence," "Punishment."

ICBM - inter-continental ballistic missile. The ICBM is the only weapon the Strategic Defense Initiative is intended to counter. See "SDI."

Leakproof - refers to a capability of a defensive system. A leakproof defense, for the purpose of this paper, will destroy 99.9% of all missile-borne warheads launched against it. See "Nominal," "Point," "Area."

CONTINUED

Nominal - refers to a capability of a defensive system. A nominal defense, for the purpose of this paper, will destroy 75% of all missile-borne warheads launched against it. See "Leakproof," "Point," "Area."

Passive - refers to a method of defense. A passive defense seeks to prevent damage to potential targets indirectly, such as by hardening, dispersal, or camouflage. See "Active."

Point - refers to the coverage provided by a defensive system. A point defense, for the purpose of this paper, defends only the United States' potential strategic targets, such as ICBM silos, B-52 and FB-111 bases, and NORAD. See "Area," "Leakproof," "Nominal."

Preemptive - a first strike, one of the objectives of which is to the enemy's strategic forces before they can be fired. See "Counterforce."

Punishment - a method to deter a potential aggressor. By structuring one's forces so that, even if the enemy strikes first, one will have the ability to strike him back, one places a disincentive against striking in the enemy's mind, thus deterring him. See "Deterrence," "Denial."

SDI - Strategic Defense Initiative. The proposal to study the possibility of building a defensive system that would defend against attack from ICBMs.